

What is claimed is:

1. An article of footwear having a variable support structure comprising, in combination:
 - a sole structure;
 - an upper secured to the sole structure;
 - at least one reservoir of magneto-rheological fluid in at least one of the upper and the sole structure; and
 - a magnet assembly proximate each reservoir;
wherein a magnetic field produced by the magnet assembly transforms the magneto-rheological fluid from a fluid state to a near-solid state.
2. The article of footwear of claim 1, wherein the magnet assembly comprises a plurality of permanent magnets.
3. The article of footwear of claim 2, wherein when the article of footwear is in a first condition the permanent magnets are spaced apart from the reservoir and the magneto-rheological fluid is in a fluid state, and when the article of footwear is in a second condition the permanent magnets are proximate the reservoir and create a magnetic field within the reservoir and transform the magneto-rheological fluid into a near-solid state.
4. The article of footwear of claim 3, wherein the article of footwear transforms from the first condition to the second condition when an external force is exerted on the shoe.
5. The article of footwear of claim 1, wherein the magnet assembly comprises a plurality of electromagnets.

6. The article of footwear of claim 5, further comprising a load cell configured to activate the electromagnets upon detection of a force from a user's foot.

7. The article of footwear of claim 6, wherein the load cell is positioned in a sidewall of the upper.

8. The article of footwear of claim 6, wherein the load cell is positioned in the sole structure.

9. The article of footwear of claim 5, further comprising a power source connected to the electromagnets.

10. The article of footwear of claim 9, wherein the power source comprises a battery.

11. The article of footwear of claim 1, wherein the reservoir of magneto-rheological fluid is located in a lateral sidewall of the upper.

12. The article of footwear of claim 1, wherein the reservoir of magneto-rheological fluid is located in a medial sidewall of the upper.

13. The article of footwear of claim 1, wherein the magnet assembly comprises a plurality of magnets on a first side of a reservoir and a plurality of magnets on an opposed second side of the reservoir.

14. The article of footwear of claim 1, wherein the magneto-rheological fluid comprises magnetic particles suspended in oil.

15. The article of footwear of claim 1, wherein the magneto-rheological fluid comprises iron molecules suspended in silicon.

16. The article of footwear of claim 1, wherein the reservoir of magneto-rheological fluid is located in a compressible support element secured to a bottom surface of the sole structure.

17. An article of footwear having a variable support structure comprising, in combination:

- a sole structure;
- an upper secured to the sole structure;
- a reservoir of magneto-rheological fluid in a sidewall of the upper; and
- a plurality of magnets in the sidewall;

wherein a magnetic field produced by the magnets transforms the magneto-rheological fluid from a fluid state to a near-solid state.

18. The article of footwear of claim 17, wherein the magnets comprise a plurality of permanent magnets.

19. The article of footwear of claim 17, wherein the magnets comprise a plurality of electromagnets.

20. The article of footwear of claim 19, further comprising a load cell configured to activate the electromagnets upon detection of a force from a user's foot.

21. The article of footwear of claim 20, wherein the load cell is positioned in a sidewall of the upper.
22. The article of footwear of claim 19, further comprising a power source connected to the electromagnets.
23. The article of footwear of claim 22, wherein the power source comprises a battery.
24. The article of footwear of claim 17, wherein the reservoir of magneto-rheological fluid is located in a lateral sidewall of the upper.
25. The article of footwear of claim 17, wherein the reservoir of magneto-rheological fluid is located in a medial sidewall of the upper.
26. The article of footwear of claim 17, wherein the magnets comprise a plurality of magnets on a first side of a reservoir and a plurality of magnets on an opposed second side of the reservoir.
27. The article of footwear of claim 1, wherein the magneto-rheological fluid comprises magnetic particles suspended in oil.
28. The article of footwear of claim 1, wherein the magneto-rheological fluid comprises iron molecules suspended in silicon.
29. An article of footwear having a variable support structure comprising, in combination:
a sole structure;

an upper secured to the sole structure;
a first reservoir of magneto-rheological fluid formed in a lateral sidewall of the upper;
a second reservoir of magneto-rheological fluid formed in a medial sidewall of the upper;
a first plurality of magnets positioned in the lateral sidewall; and
a second plurality of magnets positioned in the medial sidewall;
wherein each plurality of magnets is configured to produce a magnetic field in a corresponding reservoir and transforms the magneto-rheological fluid from a fluid state to a near-solid state.

30. The article of footwear of claim 29, wherein the magnets are permanent magnets.
31. The article of footwear of claim 29, wherein the magnets are electromagnets.
32. The article of footwear of claim 31, further comprising a load cell configured to activate the electromagnets upon detection of a force from a user's foot.
33. The article of footwear of claim 32, wherein the load cell is positioned in a sidewall of the upper.
34. The article of footwear of claim 31, further comprising a power source connected to the electromagnets.
35. The article of footwear of claim 34, wherein the power source comprises a battery.